

# Notice of Allowability

Application No.

09/636,004

Examiner

Quang N. Nguyen

Applicant(s)

DEL VAL ET AL.

Art Unit

2141

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the Pre-Appeal Brief Request filed on 02/17/2006.
2. ☒ The allowed claim(s) is/are 7-9,19-24,27,28,55,57-62 and 64-80.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

## Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

  
RUPAL DHARIA  
SUPERVISORY PATENT EXAMINER

***Examiner's Amendment***

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

2. Authorization for this Examiner's Amendment was given in a telephone interview with the Applicant's Representative, Mr. Lance Sadler (Reg. No. 38,605), on November 13<sup>th</sup>, 2006.

3. Please amend claims 7, 19 and 58 as below:

**Claim 7. (Currently Amended)** A method for measuring bandwidth between two entities on a communications network, the method comprising:

via a communications network, receiving at least a pair of non-compressible packets having measurable characteristics;

calculating bandwidth based upon, measurable characteristics of at least the pair of non-compressible packets; and

determining if the calculated bandwidth is outside a given range of believability for calculated bandwidth, wherein the given range of believability for calculated bandwidth is 24.4 Kbps – 1 Mbps, a low-believability threshold is 24.4 Kbps and a high-believability threshold is 1 Mbps;

if the calculated bandwidth is determined to be outside the given range of believability for calculated bandwidth:

disregarding the calculated bandwidth; and

querying a modem of an entity about a bandwidth setting of the modem.

**Claim 19. (Currently Amended)** A method for measuring bandwidth between two entities on a dynamic network, the method comprising:

via a dynamic network, sending at least a pair of non-compressible packets, the dynamic network being a communications network having no assurance that both packets of a pair of identical packets are handled in an identical manner while in transit on the communications network;

receiving a bandwidth value determined based upon measurements related to at least the pair of non-compressible packets, and consideration of a given range of believability related to calculated bandwidth, wherein the given range of believability related to calculated bandwidth is 24.4 Kbps – 1 Mbps, a low-believability threshold is 24.4 Kbps and a high-believability threshold is 1 Mbps;

selecting a file formatted for a given bandwidth that is equal to or less than the bandwidth value; and

sending the selected file via the dynamic network.

**Claim 58. (Currently Amended)** A method, comprising:

via a communications network, receiving at least a pair of non-compressible packets having measurable characteristics;

calculating bandwidth based upon, measurable characteristics of at least the pair of non-compressible packets; and

determining if the calculated bandwidth is outside a given range of believability for calculated bandwidth,

if the calculated bandwidth is determined to be outside the given range of believability **for calculated bandwidth**:

setting a bandwidth to a low-believability threshold if the calculated bandwidth is below the given range of believability for calculated bandwidth; and

setting a bandwidth to a high-believability threshold if the calculated bandwidth is above the given range of believability for calculated bandwidth,

**wherein the given range of believability for calculated bandwidth is 24.4 Kbps – 1 Mbps, the low-believability threshold is 24.4 Kbps and the high-believability threshold is 1 Mbps.**

4. Please cancel claims 29 and 63.

5. Please add claims 64-80 as below:

**Claim 64. (New)** One or more computer-readable storage media having computer-readable instructions stored thereon which, when executed by a computer processor, implement a method for measuring bandwidth between two entities on a communications network, the method comprising:

via a communications network, receiving at least a pair of non-compressible packets having measurable characteristics;

calculating bandwidth based upon, measurable characteristics of at least the pair of non-compressible packets; and

determining if the calculated bandwidth is outside a given range of believability for calculated bandwidth, wherein the given range of believability for calculated bandwidth is 24.4 Kbps – 1 Mbps, a low-believability threshold is 24.4 Kbps and a high-believability threshold is 1 Mbps;

if the calculated bandwidth is determined to be outside the given range of believability for calculated bandwidth:

disregarding the calculated bandwidth; and

querying a modem of an entity about a bandwidth setting of the modem.

**Claim 65. (New)** The one or more computer-readable storage media of claim 64, wherein the queried modem is a modem of receiving entity.

**Claim 66. (New)** The one or more computer-readable storage media of claim 64, wherein the queried modem is a modem of sending entity.

**Claim 67. (New)** One or more computer-readable storage media having computer-readable instructions stored thereon which, when executed by a computer processor, implement a method for measuring bandwidth between two entities on a communications network, the method comprising:

via a dynamic network, sending at least a pair of non-compressible packets, the dynamic network being a communications network having no assurance that both

packets of a pair of identical packets are handled in an identical manner while in transit on the communications network;

receiving a bandwidth value determined based upon measurements related to at least the pair of non-compressible packets, and consideration of a given range of believability related to calculated bandwidth, wherein the given range of believability related to calculated bandwidth is 24.4 Kbps – 1 Mbps, a low-believability threshold is 24.4 Kbps and a high-believability threshold is 1 Mbps;

selecting a file formatted for a given bandwidth that is equal to or less than the bandwidth value; and

sending the selected file via the dynamic network.

**Claim 68. (New)** The one or more computer-readable storage media of claim 67, wherein each of the pair of non-compressible packets is approximately fragmentation-avoidance size.

**Claim 69. (New)** The one or more computer-readable storage media of claim 67, wherein each of the pair of non-compressible packets is highly entropic.

**Claim 70. (New)** The one or more computer-readable storage media of claim 67, wherein each of the pair of non-compressible packets is formatted for TCP.

**Claim 71. (New)** The one or more computer-readable storage media of claim 67, wherein each of the pair of non-compressible packets is formatted for UDP.

**Claim 72. (New)** The one or more computer-readable storage media of claim 67, wherein the packets of the pair are equivalent in size.

**Claim 73. (New)** The one or more computer-readable storage media of claim 67, further comprising, before the sending, selecting one of the pair of non-compressible packets from a set of differing non-compressible packets.

**Claim 74. (New)** The one or more computer-readable storage media of claim 67, further comprising, before the sending, generating the pair of non-compressible packets.

**Claim 75. (New)** The one or more computer-readable storage media of claim 67, wherein the dynamic network is the Internet.

**Claim 76. (New)** One or more computer-readable storage media having computer-readable instructions stored thereon which, when executed by a computer processor, implement a method, comprising:

via a communications network, receiving at least a pair of non-compressible packets having measurable characteristics;

calculating bandwidth based upon, measurable characteristics of at least the pair of non-compressible packets; and

determining if the calculated bandwidth is outside a given range of believability for calculated bandwidth,

if the calculated bandwidth is determined to be outside the given range of believability for calculated bandwidth:

setting a bandwidth to a low-believability threshold if the calculated bandwidth is below the given range of believability for calculated bandwidth; and

setting a bandwidth to a high-believability threshold if the calculated bandwidth is above the given range of believability for calculated bandwidth,

wherein the given range of believability for calculated bandwidth is 24.4 Kbps – 1 Mbps, the low-believability threshold is 24.4 Kbps and the high-believability threshold is 1 Mbps.

**Claim 77. (New)** The one or more computer-readable storage media of claim 76, wherein each of the pair of non-compressible packets is highly entropic.

**Claim 78. (New)** The one or more computer-readable storage media of claim 76, wherein each of the pair of non-compressible packets is formatted for TCP.

**Claim 79. (New)** The one or more computer-readable storage media of claim 76, wherein each of the pair of non-compressible packets is formatted for UDP.

**Claim 80. (New)** The one or more computer-readable storage media of claim 76, wherein the packets of the pair are equivalent in size.



6. Pursuant to MPEP 606.01, the title has been changed to read:

-- FAST DYNAMIC MEASUREMENT OF CONNECTION BANDWIDTH USING  
AT LEAST A PAIR OF NON-COMPRESSIBLE PACKETS HAVING MEASURABLE  
CHARACTERISTICS --

7. Claims 7-9, 19-24, 27, 28, 55, 57-62 and 64-80 are allowed.

8. The following is an examiner's statement of reasons for allowance:

In interpreting the amended claims, in light of the specification and the applicant's Remarks filed in the Pre-Appeal Brief Request for Review on 02/17/2006, the Examiner finds the claimed invention to be patentably distinct from the prior art of records.

**Bharali et al. (US 6,216,163)** discloses a method and apparatus for determining current network throughput and congestion level, wherein the client sends both small (100 bytes) and large (700 bytes) ICMP echo messages and records the timestamp of transmission of both the small and large ICMP packets. The server responds to both the small and large ICMP packets. The timestamp of the returned ICMP echo reply messages are noted by the client and hence, the roundtrip time (RTT) and transmission rate of each of the messages is computed (for example, 10 seconds RTT for the small 100 byte packet and 20 seconds for the large 700 bytes packet). Thus, the current network throughput is then computed based on the delay and packet size differences (in this case, to send an extra 600 bytes, it requires an additional 10 seconds, hence the network throughput is computed at a data transmission rate maximum of 60 bytes per second) (**Bharali, col. 8, lines 8-47**).

**Payne et al. (US 6,161,201)** discloses a system and method for concurrent interaction with a modem having an open connection wherein a host system 34 coupled via modem 36 to a landline communication channel, may experience performance less than desirable (i.e., may experience the performance or bandwidth less than a minimum threshold value) then the connection monitor 40 may consult with modem 36, to deduce or establish a reduced data transfer rate as negotiated by the remote modem (**Payne, Fig. 2 and col. 8, lines 13-29**).

**Linzer et al. (US 6,005,621)** discloses an apparatus and method for compressing multiple resolution versions of a video signal, wherein a video server generating and delivering high-resolution video over high bandwidth connections and low-resolution video over low bandwidth connections (**Linzer, col. 7, lines 48-57**).

However, the prior art of records fail to teach or suggest individually or in combination that a method for measuring bandwidth between two entities on a communications network, the method comprising: via a communications network, receiving at least a pair of non-compressible packets having measurable characteristics; calculating bandwidth based upon, measurable characteristics of at least the pair of non-compressible packets; and **determining if the calculated bandwidth is outside a given range of believability for calculated bandwidth, wherein the given range of believability for calculated bandwidth is 24.4 Kbps – 1 Mbps, a low-believability threshold is 24.4 Kbps and a high-believability threshold is 1 Mbps** as set forth in claims 7, 19, 58, 64, 67 and 76. Claims 7-9, 19-24, 27, 28, 55, 57-62 and 64-80 are allowed because of the combination of other limitations and the limitations listed above.

The examiner finds the Applicant's arguments on pages 2-5 of the Remarks filed in the Pre-Appeal Brief Request for Review on 02/17/2006 to be persuasive. The Applicant argued in substance that the combination of prior art of records fail to disclose the features of the invention including determining if the calculated bandwidth is outside a given range of believability for calculated bandwidth, wherein the given range of believability for calculated bandwidth is 24.4 Kbps – 1 Mbps, a low-believability threshold is 24.4 Kbps and a high-believability threshold is 1 Mbps, as claimed in the invention as claimed in the invention to apply the Packet-Pair Technique on non-compressible packets to provide a fast dynamic measurement of connection bandwidth between two entities on a dynamic network such as the Internet (**see Specification, pages 7-13**).

9. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should clearly labeled "Comments on Examiner's Amendment".


10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quang N. Nguyen whose telephone number is (571) 272-3886.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's SPE, Rupal Dharia, can be reached at (571) 272-3880. The fax phone number for the organization is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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